MULTI-CHANNEL ELECTRONIC CROSSOVER NETWORK WITH REMOTE CONTROL

AX202X AX303X

OPERATING INSTRUCTIONS

PLEASE READ THIS MANUAL BEFORE OPERATING UNIT. RETAIN FOR FUTURE REFERENCE.

The Audiobahn Way

To bring the product to market that excites the consumer through sound and vision from an orientation of integrity and customer service. We make you look as good as you sound. We strive to take car audio to an extreme the world has never seen, and a world that never stops evolving.

Audiobahn was established in 1997 with one long-term goal in mind, "**Build it Bigger, Badder, & Better, and the people will take notice!"** We back this statement with an engineering team that has brought home several Innovations, Design & Engineering Showcase Awards, and a marketing team from around the world that spends countless hours developing our no compromise products to satisfy the most discriminating enthusiasts.

Our global manufacturing facilities feature ISO9002 ratings (the highest level of quality control awarded in the electronics manufacturing industry), fully robotic assembly lines and a state of the art, California based R & D laboratory.

Due to overwhelming response from our competitors, and our goal to participate in even more events this year, we created *"TEAM AUDIOBAHN." This organization is designed to create a support network along with shirts and perks for team members. "TEAM AUDIOBAHN" is not only for the diehard competitor, but also for anyone that loves car audio as much as we do. With four levels of play, one is right for you to get started in the Audiobahn family.

Our Technical Department and entire staff look to strive above and beyond the rest of the pack by going that extra mile to help you out. Whether you happen to be a veteran competitor, or a beginner car audio enthusiast that does not know a voice coil from a spider. We are all here to help you get the best system you can with what you have.

Judge for yourself, and remember what it's all about, **"If it's not Bigger, Badder & Better, it's not Audiobahn."** If audio is your life, Audiobahn is the brand for you! We make you look as good as you sound. People never stop trying to get the best product, so we will never stop making it.

*To learn more about "TEAM AUDIOBAHN" please give us a call, see our website at www.audiobahninc.com, or email us at team@audiobahninc.com to learn about all the details.

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Dear Customer,

Congratulations on your purchase of the worlds finest brand of car audio products. Here at Audiobahn Inc. we are devoted to making our musical reproduction the very best, and we are pleased you have chosen our product. Through years of engineering expertise, hand craftsmanship, and critical testing procedures, we have created a wide range of products that reproduce music with all the clarity and richness you deserve.

For maximum performance we recommend you have your Audiobahn product installed by an Authorized Audiobahn Dealer, as we provide specialized training through our Audiobahn Installer Training Programs. Please read your warranty, keep your receipt, and original carton for possible future use.

Great products and proper installation are only a small piece of the puzzle when it comes to your system. Make sure that your installer is using only 100% authentic installation accessories from the Audiobahn Connections. The Audiobahn line has everything ranging from the smallest terminal, to power wires up to 0 gauge, and 4 channel RCA cables.

To get a free brochure on Audiobahn products in the U.S. call (714) 988-0400 or e-mail us at sales@audiobahninc.com.

WARNING

Continuous exposure to sound pressure levels over 100 dB may cause permanent hearing loss. High powered autosound systems may produce sound pressure levels well over 135dB. Need we say more! Use common sense.

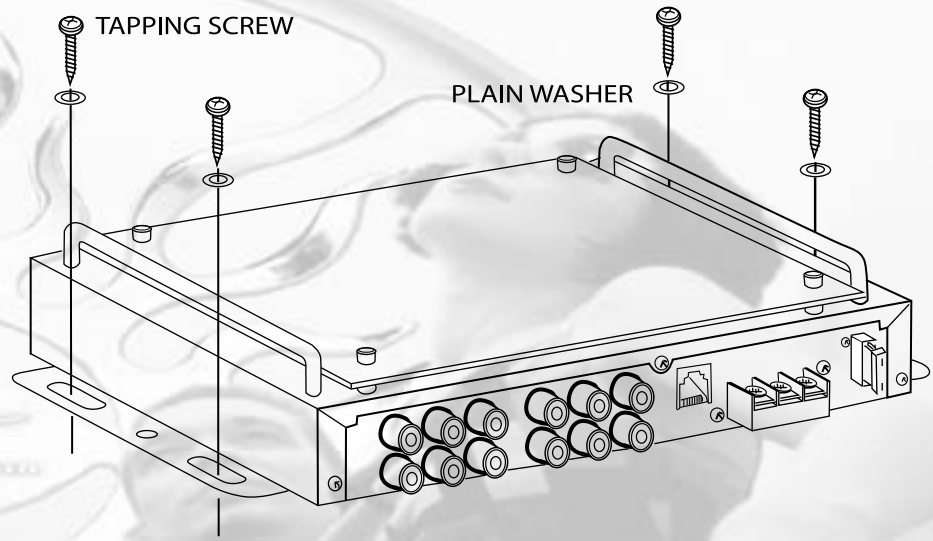
If after reading this manual, you still have questions regarding your product, we recommend that you see your nearest Audiobahn Dealer. A list of Authorized Audiobahn Dealers can be found on our web page. If you need further assistance, feel free to call us at (800)488-8595 and ask for the Technical Department. Be sure to have the model number, date of purchase, and invoice number available when you call.

The model number can be located on the outside of the carton. Record this in the space provided below along with the date of purchase. It is a good idea to keep your receipt with this, as you will need it in the case of a warranty repair or exchange.

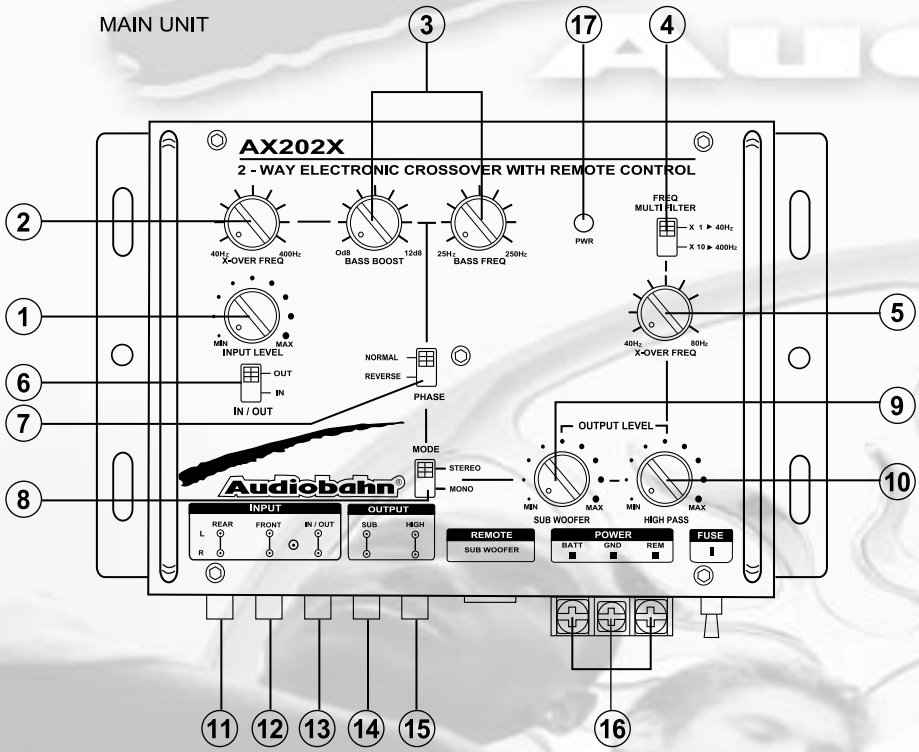
Model Number:_____ Date of Purchase: _____

The AX202X / AX303X is an electronic crossover network. With this you can install various types of multi-channel amplifier systems in your vehicle. By putting the AX202X / AX303X in the center of your multi-channel amplifier car stereo system, the unit will provide you with ultimate sound reproduction. The AX202X / AX303X crossover unit has built in line drivers which will help you adjust your level settings to match your source unit.

INSTALLATION



AX202X



1. INPUT LEVEL CONTROL
   This gain control is used to adjust the sensitivity of the unit to match the radio's output.

2. SUBWOOFER FREQUENCY CONTROL
   By turning the selector you can choose from an infinite number of crossover points from 40Hz - 400Hz.

3. BASS EQUALIZER / BASS FREQUENCY CONTROL
   By turning the selector, you activate a single octave 12dB boost from 25Hz - 250Hz, depending on the position of the frequency selector.

4. FREQUENCY MULTIPLIER
   This switch changes crossover points from 40Hz - 80Hz to 400Hz - 8kHz for high frequency drivers.

5. HIGH-PASS FREQUENCY SELECTOR
   By turning the selector, you can choose from an infinite number of crossover points from 40Hz-8kHz.

6. IN / OUT SWITCH
   See page 11. (Signal connection diagram)

7. PHASE SHIFTER SWITCH
   Allows you to change the phase of your subwoofer 0° to 180° to help compensate for timing differences between drivers.

8. STEREO / MONO SWITCH
   By moving this switch to the "MONO" position, the subwoofer output changes from stereo to mono, thus facilitating a single subwoofer control.

9. SUBWOOFER GAIN CONTROL
   By turning this control clockwise, you increase the subwoofer channel level.

10. HIGH-PASS GAIN CONTROL
    By turning this control clockwise, you increase high channel level.

11. REAR CHANNEL INPUT JACKS
    Connect rear input signal from sound source into these jacks via RCA cables.

12. FRONT CHANNEL INPUT JACKS
    Connect front input signal from source unit into these jacks via RCA cables.

13. IN / OUT JACKS
    You can use this connection if you have another pre-amp audio source or connect two or more AX202X units together.

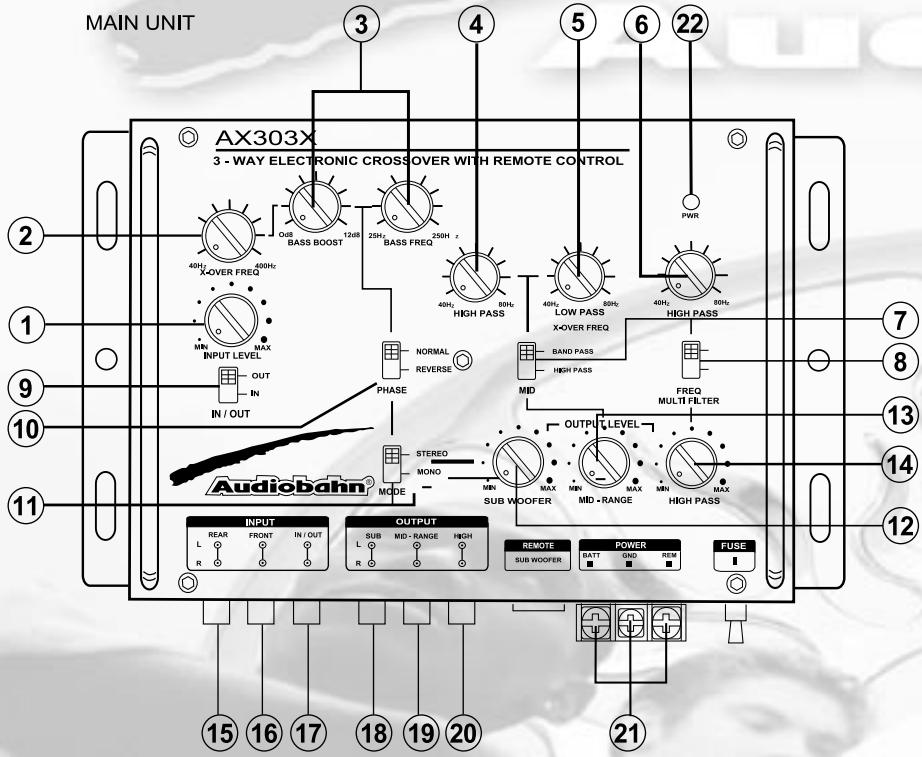
14. SUBWOOFER OUTPUT JACKS
    Connect the RCA cable to the subwoofer channel of the amplifier input.

15. HIGH-PASS OUTPUT JACKS
    Connect the RCA cables to the front channel of the amplifier input.

16. POWER TERMINAL
    Make connections using the supplied detachable plug. Connect the "B+" terminal to the battery positive (+). Connect the "B-" terminal to chassis ground. Connect the REMOTE terminal to a 12V (switched) DC source to allow the bass driver to be turned on/off by the head unit.

17. POWER LED
    This blue LED light up when the unit is on.

AX303X



1. INPUT LEVEL CONTROL
   This gain control is used to adjust the sensitivity of the unit to match the radio's output.

2. SUBWOOFER FREQUENCY CONTROL
   By turning the selector you can choose from an infinite number of crossover points from 40Hz - 400Hz.

3. BASS EQUALIZER / BASS FREQUENCY CONTROL
   By turning the selector, you activate a single octave 12dB boost from 25Hz - 250Hz, depending on the position of the frequency selector.

4. MID-RANGE / HIGH-PASS FREQUENCY SELECTOR
   By turning the adjustable dial, you can select a high-pass crossover point for the mid output between 40Hz-800Hz.

5. MID-RANGE / LOW-PASS FREQUENCY SELECTOR
   By tuning the adjustable dial, you can select a low-pass crossover point for the mid output between 2kHz - 7kHz

6. HIGH-PASS FREQUENCY SELECTOR
   By turning the selector, you can choose from an infinite number of crossover points from 40Hz-8kHz.

7. HIGH-PASS / BAND-PASS Selector
   When this switch is in high-pass mode, the low pass filter can't be used.

8. FREQUENCY MULTIPLIER
   This switch changes crossover points from 40Hz - 80Hz to 400Hz - 8kHz for high frequency drivers.

9. IN / OUT SWITCH
   See page 12. (Signal connection diagram)

10. PHASE SHIFTER SWITCH
    Allows you to change the phase of your subwoofer 0° to 180° to help compensate for timing differences between drivers.

11. STEREO / MONO SWITCH
    By moving this switch to the "MONO" position, the subwoofer output changes from stereo to mono, thus facilitating a single subwoofer control.

12. SUBWOOFER GAIN CONTROL
    By turning this control clockwise, you increase the subwoofer channel level.

13. IN / OUT JACKS
    You can use this connection if you have another pre-amp audio source or connect two or more AX202X units together.

14. HIGH-PASS GAIN CONTROL
    By turning this control clockwise, you increase the high channel level.

15. REAR CHANNEL INPUT JACKS
    Connect rear input signal from source unit into these jacks via RCA cables.

16. FRONT CHANNEL INPUT JACKS
    Connect front input signal from source unit into these jacks via RCA cables.

17. IN / OUT JACKS
    You can use this connection if you have another pre-amp audio source or connect two or more AX303X units together.

18. SUBWOOFER OUTPUT JACKS
    Connect the RCA cable to the subwoofer channel of the amplifier input.

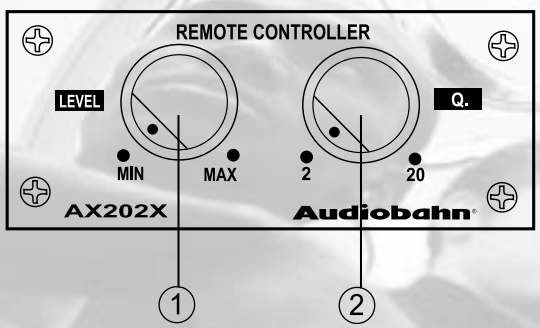
19. MID-RANGE OUTPUT PORT
    Connect the RCA cable to the rear channel of the amplifier input.

20. HIGH-PASS OUTPUT JACKS
    Connect the RCA cables to the front channel of the amplifier input.

21. POWER TERMINAL
    Make connections using the supplied detachable plug. Connect the "B+" terminal to the battery positive (+). Connect the "B-" terminal to chassis ground. Connect the REMOTE terminal to a 12V (switched) DC source to allow the bass driver to be turned on/off by the head unit.

22. POWER LED
    This blue LED light up when the unit is on.

REMOTE CONTROL UNIT



1. SUBWOOFER GAIN CONTROL
   This control adjusts the subwoofer gain control.

2. Q SELECT
   Allows independent, continuous change of the boost frequency bandwidth (Q-factor) for each band from 20 (narrow bandwidth, steep slope), to 2 (wide bandwidth, gentle slopes).

POWER CONNECTIONS:

Before connecting anything, be sure to disconnect the ground terminal from your battery to prevent any damage to the audio components. Leave the ground wire disconnected until all components are hooked up and the stereo is ready to play. Remove the power terminal from the AX202X / AX303X before fastening the wires into the correct slots as a precaution. Make sure you are looking at the terminal with the set screws facing upwards while following the instructions.

B+:

The first slot from the left is the B+ or positive (+) 12V terminal. Connect this terminal to a positive (+) 12V lead using the same source that powers your amplifiers. This should eliminate any chance of picking up noise due to voltage differences. If you decide to run power wire for the crossover directly to the battery, be sure to add an in-line fuse within a recommended 18 inches of the battery post. This will protect both the system and the vehicle from possibly dangerous electric shock. Use a minimum of 16 AWG stranded copper wire for this application and be sure to apply grommets whenever the power wire is run through any metal wall.

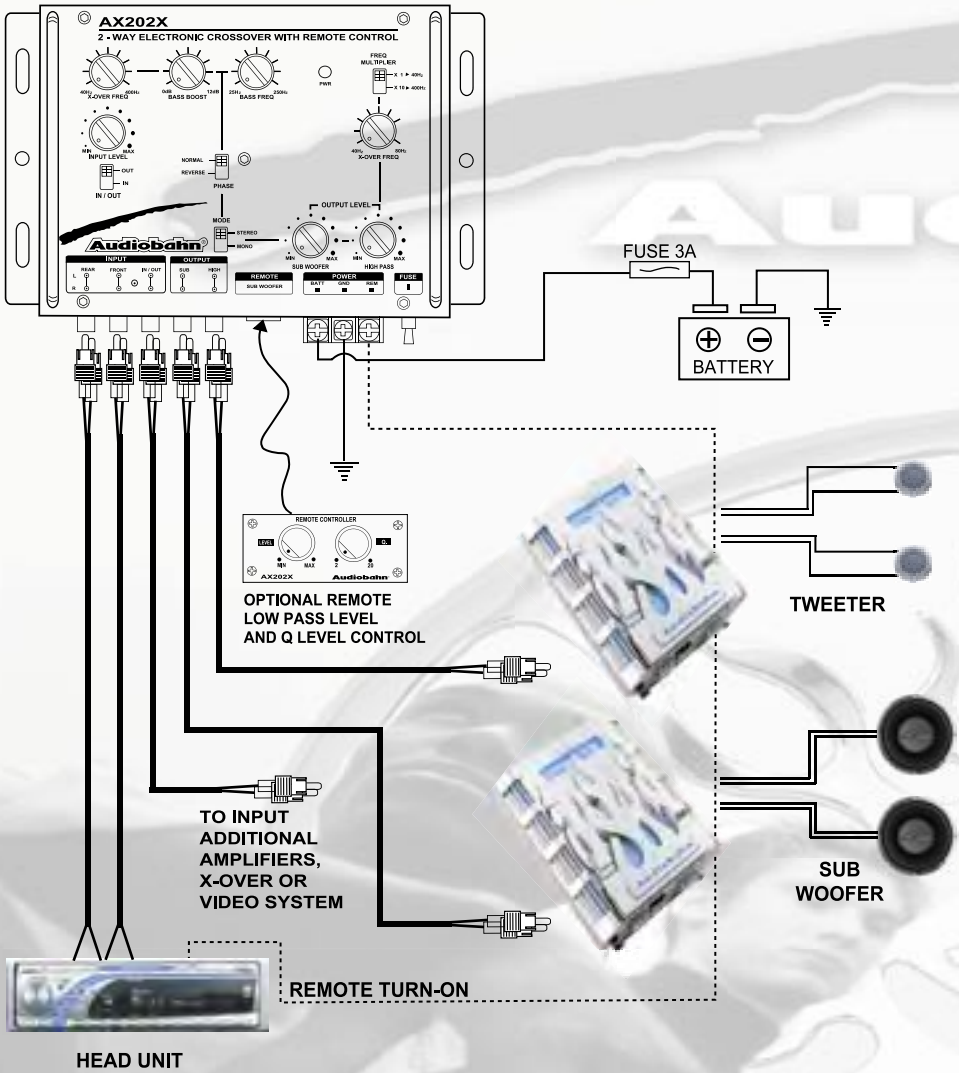
GROUND:

The second slot from the left is the ground or B- terminal. To ground your AX202X / AX303X, locate a solid metal area close to the crossover that is a good source of ground (preferable the floor). Your best ground will come from a grounding point attached directly to the frame of the vehicle. Investigate the area you wish to use for electrical wires. Do not try to move vacuum, break or fuel lines. Using either a wire brush or sandpaper to eliminate unwanted paint to supply a better contact when grounding. Use the same gauge wire for ground as you did for the power wire. Terminate your ground wire using the correct size ring terminal and attach it to bare metal using a #8 sheet metal screw. It is important for this connection to be solid. To complete the job, spread silicon over the screw and bare metal to prevent rust and/or water from entering.

REMOTE:

The third terminal from the left is the remote turn-on. This terminal must be connected to a switched +12V source. Typically, remote turn-on leads are located by the source unit, which are used to turn on and off all processors in correspondence with the source unit. If a radio does not have a remote turn-on, then a power antenna wire may be used.

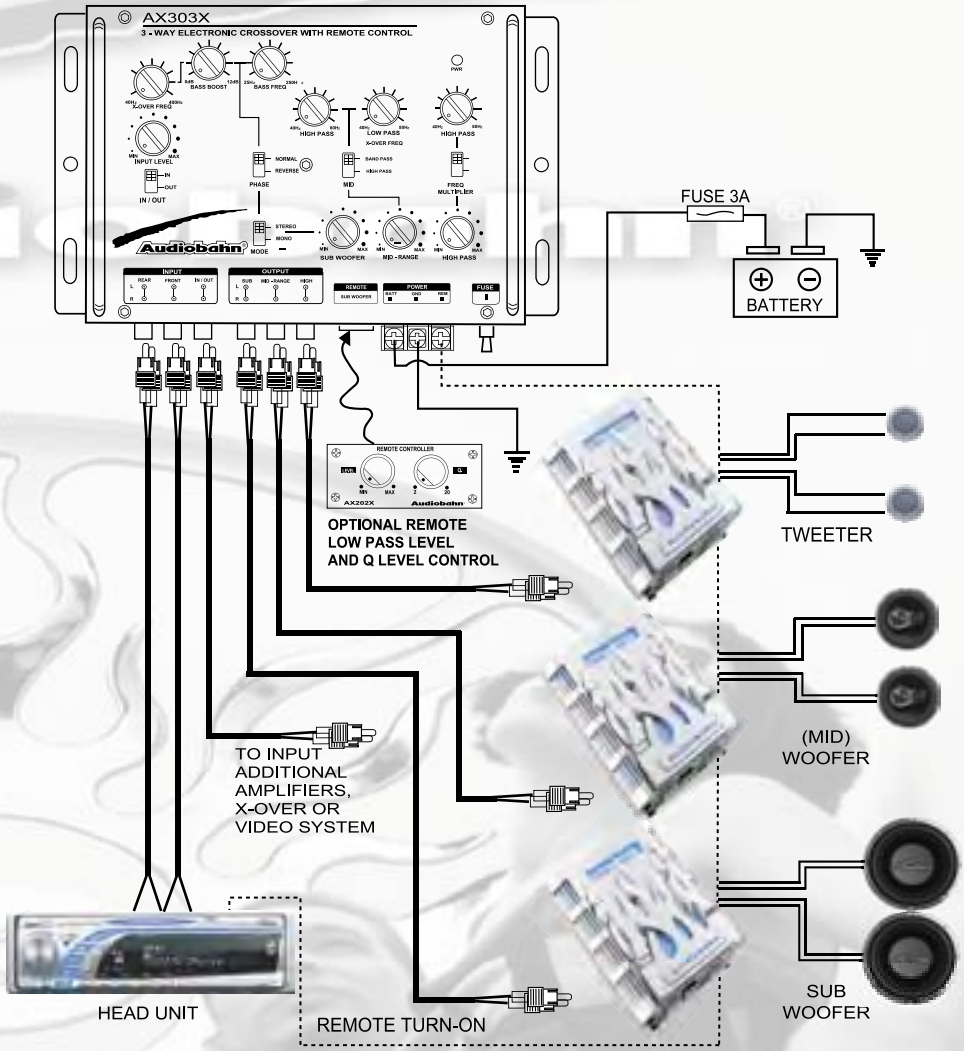
AX202X



IN / OUT SWITCH

SWITCH POSITION	VIA INPUT SOURCE	OUTPUT	
		SUBWOOFER	HIGH
IN	FRONT	ON	ON
	REAR	ON	OFF
OUT	FRONT	ON	OFF
	REAR	ON	ON

AX303X



IN / OUT SWITCH

SWITCH POSITION	VIA INPUT SOURCE	OUTPUT		
		SUBWOOFER	MID	HIGH
IN	FRONT	ON	ON	ON
	REAR	ON	OFF	OFF
OUT	FRONT	ON	OFF	OFF
	REAR	ON	ON	ON

AX202X

- Clear acrylic protective cover
- 2-way input source and 2-way output jacks
- Remote power on/off be remote turn-on
- Remote control for Q-factor and subwoofer level control
- DC to DC switching power supply.
- Fully adjustable subwoofer and high-pass output levels
- Stereo / Mono mode switch
- Variable subwoofer and high-pass crossover
- Phase shift switch
- In / Out switch
- Built-in power protection fuse (3A)
- Automatic ON/OFF DC power control with radio or tape player
- Frequency multiplier (1x , 10x) on high-pass output

AX303X

- Clear acrylic protective cover
- 2-way input source and 3-way output ports
- Remote power on/off by remote turn-on
- Remote control for Q-factor and subwoofer level control
- DC to DC switching power supply.
- Fully adjustable subwoofer mid, and high-pass output levels
- Stereo / Mono mode switch
- Variable bass boost frequency
- Infinitely variable subwoofer, mid-range and high-pass crossover
- Band-pass / high-pass switch on mid-range
- Phase shift switch
- In / Out switch
- Built-in power protection fuse (3A)
- Automatic ON/OFF DC power control with radio or tape player
- Frequency multiplier (1x , 10x) on high-pass output

AX202X

Adjustable bass boost and bass frequency (25Hz - 250Hz)
Q-factor: 20-2 (variable)
Selectable crossover frequency
-Subwoofer (Low-pass): 40Hz - 400Hz
-High-pass: 40Hz - 8kHz
Power supply: 10 - 16V DC negative ground
Input impedance: 10K ohm
S/N ratio: > 85dB
Slope rate: 18dB/octave
Max input level : 7V RMS
Channel Separation: 65dB
THD: Less then 0.05%
Dimensions: 8.3" (W) x 2.2" (H) x 5.4" (D)

AX303X

Adjustable bass boost and bass frequency (25Hz - 250Hz)
Q-factor: 20-2 (variable)
Selectable crossover frequency
-Subwoofer (Low-pass): 40Hz - 400Hz
-Mid high-pass: 40Hz - 800 Hz
-Mid low-pass: 2kHz - 7kHz
-High-pass: 40Hz - 8kHz
Power supply: 10 - 16V DC negative ground
Input impedance: 10K ohm
S/N ratio: > 85dB
Slope rate: 18dB/octave
Max input level : 7V RMS
Channel Separation: 65dB
THD: Less then 0.05%
Dimensions: 9.3" (W) x 2.2" (H) x 5.9" (D)

ADJUSTING THE CROSSOVER

The crossover provides variable enhancement of bass frequencies. The level of peak boost varies from 0dB to +12dB. The frequency that peak boost occurs at is adjustable from 40Hz - 400Hz. The Q settings can be adjusted from 20 - 2. When adjusting the Q, 2 will boost a wide range of frequencies and is useful for general sound quality enhancement. Setting the Q to 20 will boost a narrow range of frequencies and can be used to tune a subwoofer system for maximum output. Moving the Q between 2 and 20 will provide you with a linear progression of frequency boost.

TUNING THE CROSSOVER

The crossover Q adjustment should be set to the 2 (wide) position. The frequency control should be set to approximately one octave below the subwoofer's resonate frequency. In vented enclosures, the roll off of the system is quite steep below the tuning frequency (typically 24dB/octave). In this case, the crossover should be set to 20 (narrow) position. Never set the crossover boost frequency below a vented enclosure's tuning frequency. For maximum output from a vented enclosure, set the crossover boost frequency to the tuning of the box. These adjustments can be made with the crossover in the signal path, but make sure the effect is turned off (remote level set to Min.). Then verify operation of the crossover by increasing the boost level while listening for changes in subwoofer response. Once operation of the crossover is confirmed, you can start making adjustments.

TROUBLESHOOTING GUIDE

- 1. SIGNAL PROCESSOR DOES NOT TURN ON:
  Check fuse (3A) and all fuses in system.
  Check all power (positive, remote) wire connections.
  Check that the ground wire is properly connected.

- 2. POWER LED INDICATOR DOES NOT COME ON:
  Same as above #1 solutions.

- 3. SOUND DISTORTION AT LOW VOLUME LEVEL:
  Output level is not set correctly.

- 4. LEVEL OF SOUND IS LOW:
  Check the input gain control. Match it to the source unit output.
  Check the RCA cables for loose or incorrectly connected cables.

- 5. A WHINING SOUND CAN BE HEARD THROUGH THE SPEAKERS AT LOW VOLUME LEVEL WITH THE ENGINE RUNNING:
  Check the power wire for a good connection directly to the battery. The ground wire must make a good connection with the chassis of the vehicle.

Technical Assistance(800)488-8595 /tech@audiobahninc.com

WARNING

Investigate the layout of your automobile thoroughly before drilling or cutting any holes. Take care when you work near the gas tanks, gas lines, hydraulic lines, and electrical wiring. Attach the system securely to the automobile to prevent damage, particularly in the event of an accident. Do not mount the system so that the wire connections are unprotected or are subject to pinching or damage from nearby objects.

The +12V DC power wire must be fused at the battery positive terminal connection. Before making or breaking power connections at the system power terminals, disconnect the +12V wire at the battery end. Confirm your radio/head unit and/or other equipment is turned off while connecting the input jacks and speaker terminals. If you need to replace the power fuse, replace it only with a fuse identical to that supplied with the system. Using a fuse of different type or rating may result in damage to this system which is not covered by the warranty.

Disclaimer

Specifications are subject to change without notice.
For the most updated Specifications call Audiobahn,
or your local Authorized Audiobahn Dealer,
or check the Audiobahn website.
www.audiobahninc.com

Audiobahn Consumer Product Warranty Policy

Audiobahn products are manufactured with the highest quality components and some of the most advanced technology available. Because of this, we recommend that you have your new products installed by an **Authorized Audiobahn Dealer.(A list of Authorized Audiobahn Dealers can be found on our web page).**

Warranty Period: One year from the original date of purchase.

Warranty Coverage: This warranty covers manufacturer defects only. The warranty is applicable to the original purchaser, and is non-transferable. You must have a receipt from an **Authorized Audiobahn Dealer** that shows the location of purchase, price paid, and date of purchase.

(Products purchased by consumers from an **Authorized Audiobahn Dealer** outside the United States, are covered only by that countries Distributor and not by **Audiobahn**).

Notes:
Complete subwoofer enclosures (**Audiobahn** will replace defective subwoofers, plexiglass, or neon only. Do not send the entire enclosure, unless the enclosure is defective itself. You must receive prior authorization and an RA# before sending in any complete enclosure).

Audiobahn will only replace L.E.D.(s) found to be defective at the time of purchase.

Audiobahn warranties do not cover the following:

- Any product not purchased from an **Authorized Audiobahn Dealer** (including Internet dealers)
- Damage caused by abuse, misuse, accident, water / flood, or theft (including any cosmetic damage to the body of the product)
- Damage caused by improper installation
- Any cost or expense related to removal or reinstallation
- Any unauthorized services
- Any product that has the serial number removed, altered, or defaced
- Subsequent damage to any other components
- Pinched, cut, or stripped wires
- Any product that is new, and/or found to be in working condition
- L.E.D. indicators on electronics

How to receive warranty service: Contact your local **Authorized Audiobahn Dealer**, or call **Audiobahn** at **(800) 488-8595** between the hours of 9:00 AM and 5:00 PM PST.

If you are having problems with your system, we recommend you check the product carefully and thoroughly to confirm that the product truly has a manufacturer defect; as opposed to abuse, or other components in the system causing the failure. This might include having an **Authorized Audiobahn Dealer** look at the product to confirm the source of the problem. Any product found to have a manufacturer defect will be replaced with a new piece of the same or similar model, or repaired at the discretion of **Audiobahn.** Any product found to have no manufacturer defect will be returned to the sender at their cost.

You must acquire a Return Authorization Number (RA#) prior to returning ANY product to Audiobahn. That Return Authorization Number (RA#) must be prominently and clearly marked on the outside of the shipping carton, or product delivery will be refused (no exceptions will be made).

Please note: All shipping and handling (to and from) charges will be the sole responsibility of the consumer.

Please record and keep your Return Authorization Number (RA#) in the event that further communication is required.

Return Authorization Number (RA#): _____

Date product was sent: _____

Contact Information

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